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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/656,911

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Jeffery A. Whiteford

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QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.

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ALAMEDA, CA 94501

EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1774

MAIL DATE

DELIVERY MODE

09/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/656,911

Applicant(s)

WHITEFORD ET AL.

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on RCe filed January 16, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12, 13 and 15-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-13 and 15-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 16, 2007 has been entered.
2. Applicant's amendment and accompanying remarks filed November 13, 2006 are acknowledged.
3. Examiner acknowledges amended claims 1, 19, 31 and 37.
4. The rejection of claims 37-42 under 35 U.S.C. 102(b) as being anticipated by Majumdar, U.S. Patent Number 6,882,051 is overcome by applicant's amendment.
5. The rejection of claims 1-10, 12-13, 15-18 and 31 under 35 U.S.C. 102(b) as being anticipated by Matyjaszewski, U.S. Patent Number 7,056,455 is overcome by applicant's amendment.
6. The rejection of claims 19-30 and 32-36 under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski, U.S. Patent Number 7,056,455 in view of Ying et al., U.S. Patent Number 5,958,367 is overcome by applicant's amendment.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 40 is rendered indefinite because it is unclear whether or not the nanostructure is crossed. It is unclear whether or not the nanostructures are parallel or perpendicular or if the nanostructures are crossed.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 37-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Lieber et al., U.S. Patent Number 7,211,464.

Lieber discloses highly ordered nanowire structures wherein the longitudinal axes of the structures are disposed parallel to the surface of a substrate (see column 12, lines 65-65 and column 15, lines 49-68). Lieber also discloses a plurality of nanostructure clusters.

Art Unit: 1774

Additionally, the Lieber reference discloses that the nanowire structures are disposed in a matrix (see column 17, lines 36-60). The Lieber reference also discloses that the wires can be cross-wires which can be perpendicular to the surface of the substrate see Figures 33A and 33B.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-10, 12-13, 15-18 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al., U.S. Patent Number 7,056,455 in view of Lieber et al., U.S. Patent Number 7,211,464.

The reference teaches a composition comprising a plurality of structurally ordered nanostructures in a matrix comprising chemically crosslinkable nanostructures (see column 8, lines 30-35; column 43, lines 23-29; column 20, lines 46-51; column 21, lines 4-28; column 18, lines 64-column 19, line 4). The reference teaches aligned nanostructures, as required by claims 2-7, 16-17 (column 21, lines 34-64). Additionally, the reference teaches self assembling material in column 16, lines 20-23 and required by claim 12. Also, the reference teaches similar nanostructures in column 8, lines 9-23, as required by claims 8-10 and 18 (see entire document). The reference teaches material cross-linked as required by claim 13 in column 43, lines 23-29; column 8, lines 30-35. Binding of componets is disclosed in column 21, lines 4-28 as per instant claim 15. The Matyjaszewski reference does not disclose that the nanostructures comprise group III-V, group II-VI or group IV semiconductors or alloys. Lieber discloses highly ordered

Art Unit: 1774

nanowire structures wherein the longitudinal axes of the structures are disposed parallel to the surface of a substrate (see column 12, lines 65-65 and column 15, lines 49-68). Lieber also discloses a plurality of nanostructure clusters. Additionally, the Lieber reference discloses that the nanowire structures are disposed in a matrix. Lieber also discloses that the nanostructures comprise group III or group V semiconductors (see column 2, lines 5-43). Control of the structures can be provided with semiconductors. Therefore, it would have been obvious to one of ordinary skill in the art to use group III or group V semiconductors in the Matyjaszewski reference in order to have miniaturization in the use of optoelectronic device (see Lieber: column 7, line 65-column 8, line 10).

13. Claims 19-30 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al., U.S. Patent Number 7,056,455 in view of Ying et al., U.S. Patent Number 5,958,367 and in further view of Lieber et al., U.S. Patent Number 7,211,464.

Matyjaszewski discloses the claimed invention including various shaped nanostructures (see column 16, lines 9-23) and ligands (see column 37, lines 53-55). Ying discloses that it is known in the art to include ligands in similar compositions as taught by Matyjaszewski (see column 7, lines 24-40; column 2, lines 61-67; column 7, lines 24-33). Ligands are used to stabilize a structure. Therefore, it would have been obvious to one of ordinary skill in the art to be motivated to use ligands in the Matyjaszewski reference in order to have a more stabilized product. Neither Matyjaszewski nor Ying disclose the use of group III-V, group II-VI or group IV semiconductors or alloys. Lieber discloses highly ordered nanowire structures wherein the longitudinal axes of the structures are disposed parallel to the surface of a substrate (see column

Art Unit: 1774

12, lines 65-65 and column 15, lines 49-68). Lieber also discloses a plurality of nanostructure clusters. Additionally, the Lieber reference discloses that the nanowire structures are disposed in a matrix. Lieber also discloses that the nanostructures comprise group III or group V semiconductors (see column 2, lines 5-43). Control of the structures can be provided with semiconductors. Therefore, it would have been obvious to one of ordinary skill in the art to use group III or group V semiconductors in the Matyjaszewski reference in order to have miniaturization in the use of optoelectronic device (see Lieber: column 7, line 65-column 8, line 10).

#### ***Response to Arguments***

14. Applicant's arguments with respect to claims 1-10, 12-13 and 15-42 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached at (571) 272-1398. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 1774

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MILTON I. CANO  
SUPERVISORY PATENT EXAMINER